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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,089	03/09/2007	Daniel Smith	DAIRY88.019APC	6303

20995 7590 12/21/2011

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EXAMINER	
KING, FELICIA C	

ART UNIT	PAPER NUMBER
1789	

NOTIFICATION DATE	DELIVERY MODE
12/21/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/579,089	SMITH ET AL.	
	Examiner	Art Unit	
	FELICIA KING	1789	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-9,11-15,18,19,22,24,31-34,36-49,51-63 and 65-82* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-9, 11-15, 18, 19, 22, 24, 31-34, 36-49, 51-63, and 65-82* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Application is written in response to the Applicants Remarks filed 10/12/11. Claims 1-9, 11-15, 18, 19, 22, 24, 31-34, 36-49, 51-63, and 65-82 are pending.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 2 and 4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Claims 2 and 4 include the limitation of "inactivating the flavor producing organisms". In the specification, this step is preceded by the phrase "if required". There is nothing in the specification or in the claims as originally filed which require the inactivation of flavor producing microorganisms. This is especially found where the flavor concentrate is defined as a resulting product of fermentation of viable or non-viable edible fungus or yeast. Further, in light of the amendments made to claims 2 and 4 there is nothing the specification that indicates heating as the means for inactivating.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-9, 11-15, 18, 19, 22, 24, 31-34, 36-49, 51-63, and 65-82 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Regarding claims 1, 19, and 22; 2, 42, and 43; 3, 57, and 58; 4, 71 and 72 the claims now recite the limitation "whey protein" as part of the protein concentrate. In the Applicants' specification, paragraph 0126 states that when whey protein is used, the mixture is heated at 90°C - 92°C. The Applicants do not provide for this heating limitation in the claims because the temperatures recited in the claims are broader than the temperature range discussed on paragraph 0126 in the specification when whey is used.

6. Claims 42 and 43 are rejected under 35 U.S.C. 112, fourth paragraph, which states that "a claim in a dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers" and requires the dependent claim to further limit the subject matter claimed.

Claims 42 and 43 fail to specify a further limitation of the subject matter in claim 2. Claim 2 states that the cheese mass is heated to at least 75°C. Claim 42 recites that the cheese is heated to at least 60°C. Claim 43 recites that the cheese is heated to at least 70°C. The limitations recited in the dependent claims 42 and 43, are less than/outside of the range disclosed in claim 2.

7. Claims 71 and 72 are rejected under 35 U.S.C. 112, fourth paragraph, which states that "a claim in a dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers" and requires the dependent claim to further limit the subject matter claimed.

Claims 71 and 72 fail to specify a further limitation of the subject matter in claim 4. Claim 4 states that the cheese mass is heated to at least 75°C. Claim 71 recites that the cheese is heated to at

least 60°C. Claim 72 recites that the cheese is heated to at least 70°C. The limitations recited in the dependent claims 71 and 72, are less than/outside of the range disclosed in claim 4.

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 5, 6, 9, 14, 15, 18, 19, 22, 76, 80-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982).

Regarding Claim 1: Johnston discloses a process for making cheese [pg. 5, lines 10-12], having a protein concentrate with a calcium concentration of around 100mM/kg protein [Ex. 1, Ex. 4] and that the protein concentrate can be milk protein concentrate, milk, or reconstituted milk that is exposed to rennet and is coagulated to produce curd [pg. 5, lines 14-22; pg. 6, lines 16-31]. Johnston discloses including whey protein retentate or whey protein concentrate during the mixing step [pg. 10, lines 8-10]. Johnston discloses adding prepared concentrated fermentation and enzyme derived flavor ingredients to the coagulated rennetted milk [pg. 11, lines 7-12; pg. 12, lines 24-26]. Johnston also discloses that the heating and mixing step forms a homogenous cheese without holding for fermentation [pg. 9, lines 21-28; pg. 12, lines 28-32; pg. 13, lines 1-8].

Regarding Applicants addition of the limitation of "forming a cheese that can be frozen and thawed while still maintaining a smooth texture", since Johnston discloses the same or similar materials as recited in the claims, it would have been expected that the cheese in Johnston would have had the same function regarding "forming a cheese that can be frozen and thawed while still maintaining a smooth texture", as recited in the claim.

Regarding Claim 5: Johnston discloses a process of making cheese as discussed in Claim 1 and further discloses shredding the block of cheese which is considered to be commensurate with dividing the cheese into portions [pg. 10, lines 26-27].

Regarding Claim 6: Johnston discloses that the cheese is subjected to freezing [pg. 10, lines 26-27].

Regarding Claim 9: Johnston discloses a process of making cheese and further discloses shredding the block of cheese [pg. 10, lines 26-27].

Regarding Claim 14: Johnston discloses a process of making cheese as disclosed in claim 1 and discloses that the lactic acid and butyric acid can be added to provide flavor [pg. 12, lines 20-26]. Johnston discloses that the butyric acid is derived from concentrated fermentation and enzyme derived flavor ingredients [pg. 13, lines 27-29].

Regarding Claim 15: Johnston discloses adding 1.5% of a flavor compound derived from enzyme modified cheese and 350 ppm butyric acid added to the curd (rennetted milk)[Ex. 1] where the instant claim recites adding .1% to 20%.

Regarding Claim 18: Johnston discloses that the fat source is cream, high fat cream or milk fat [pg. 10, lines 8-10].

Regarding Claims 19 and 22: Johnston discloses that the heating step is carried out at 50°C to 90°C for 1 minute to 30 minutes [pg. 9, lines 24-32].

Regarding Claim 76: Johnston discloses mixing in high fat cream with the protein concentrate and flavor before heating and mixing [pg. 12, lines 20-26] which is considered to be commensurate with mixing after step b.

Regarding Claim 80: Johnston discloses cheese having a fat content of 21.5% [pg. 15, Ex.4]. Claim 80 discloses a fat content of 19-22%.

Regarding Claims 81 and 82: Johnston discloses cheese having a moisture (water) content of 52.9% [pg. 15, Ex.4]. Claim 81 discloses a moisture content of 40-55%; claim 82 discloses a moisture content of 49-55%.

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982) as applied to claims 1, 6 and in further view of Chikuma (US 3,091,539).

Regarding Claim 7: Johnston discloses a process of making cheese as discussed in Claim 1 but does not disclose that following freezing, the cheese is thawed and allowed to further ripen. However, Chikuma discloses a method of making a cheese product by freezing, thawing and further ripening curd [col. 3, lines 1-6].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Johnston and Chikuma before him or her to modify the process of Johnson to incorporate a freezing step, thawing and ripening step in order to stop any undesired enzymatic reactions by freezing and to allow for further ripening of the cheese to enhance the flavor of the cheese product.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982) as applied to claim 1 and in further view of Bernard et al. (US 4,948,613).

Regarding Claim 8: Johnston discloses a process of making cheese as discussed in Claim 1. Johnston does not disclose applying viable microorganisms to the surface and allowing ripening.

Bernard discloses a cheese product that is cooled, the surface of the cheese is inoculated with micro-organisms that grow and promote ripening of the cheese [col. 4, lines 48-55].

At the time of the invention, it would have been obvious to one of ordinary skill in the art having the teachings of Johnston and Bernard before him or her to modify the process of Johnston to include the cooling, surface inoculation and ripening steps of Bernard because Johnston and

Bernard both disclose cheese products that are similar to traditionally made cheeses [Bernard col. 2, lines 33-36]. In order to get a more traditional texture and overall organoleptic qualities in the non-traditionally made cheese Bernard discloses that the application of the microbes to the surface of the cheese produces a surface bloom similar to traditional cheese [col. 4, lines 49-55].

5. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982) as applied to claim 1 above and in view of Lashkari (GB 1,057,170).

Regarding Claims 11-13: Johnston discloses a process for making cheese [pg. 5, lines 10-12], having a protein concentrate with a calcium concentration of around 100mM/kg protein [Ex. 1, Ex. 4] and that the protein concentrate can be milk protein concentrate, milk, or reconstituted milk that is exposed to rennet and is coagulated to produce curd [pg. 5, lines 14-22; pg. 6, lines 16-31]. Johnston discloses adding a prepared concentrated fermentation and enzyme derived flavor ingredients to the coagulated rennetted milk [pg. 11, lines 7-12; pg. 12, lines 24-26]. Johnston also discloses that the heating and mixing step forms a homogenous cheese without holding for fermentation [pg. 9, lines 21-28; pg. 12, lines 28-32; pg. 13, lines 1-8].

Johnston does not disclose that the microorganism is an edible mould (claim 11), a member of *Penicillium* (claim 12), or a *P. roqueforti* (claim 13).

Lashkari discloses a cheese flavor composition containing an edible mold which is *Penicillium roqueforti* [col.1, lines 17-24] that can be added to a food composition to provide a cheesy flavor.

At the time of the invention, it would have been obvious to one of ordinary skill in the art having the teachings of Johnston and Lashkari before him or her to modify the cheese product of Johnston to incorporate the blue cheesy flavor of Lashkari cheese without the need for months of aging/curing to create natural blue cheese as is usual in the art. Johnston's process is specifically

directed towards a cheese product that does not require fermentation and the mixture of protein, fat, and flavor.

Lashkari discloses that its flavoring component is highly flavored and does not require further treatment in order to be added to a food component [col. 3, lines 43-46]. Because Johnston discloses the need for a flavor agent by the inclusion of salt and flavor in the process of making the cheese product, it would have been obvious to flavor the cheese product with the blue cheese flavoring of Lashkari in order to give a specific highly flavored product without having to wait for months to produce the flavor as is known in the art. It also would have been obvious to use the flavor concentrate to provide more variety to the consumers, since Johnston discloses flavoring for cheddar, mozzarella, and Gouda cheeses.

6. **Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982) as applied to claim 1 above and in further view of The American Cheese Society (http://web.archive.org/web/20040917204831/http://www.cheesesociety.org/displaycommon.cfm?an=1&subarticlenbr=5).**

Regarding Claim 24: Johnston discloses a process of making cheese as disclosed in Claim 1 and further discloses packaging the cheese for refrigerated storage [pg. 10, lines 26-27; pg. 13, lines 4-5]. Johnston does not disclose storing the cheese at temperatures between 5°C to 35°C and a relative humidity of 80% or greater.

The American Cheese Society discloses that cheese should be stored between 35°F and 45°F (1.6°C to 7.2°C) at a high humidity level [2nd paragraph].

At the time of the invention, it would have been obvious to one of ordinary skill in the art having the teachings of Johnston and The American Society to store the cheese at 35°F and 45°F

(1.6°C to 7.2°C) and at a high humidity because storage under these condition are well known in the art and help retain freshness and organoleptic quality of the cheese.

Further, although The American Cheese Society does not disclose the same temperature range as in the instant claim, one having ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by The American Society overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. *In re Malagari* 182 USPQ 549,553.

Further, although The American Cheese Society does not explicitly disclose the humidity as higher than 80% it does disclose that the humidity must be high, therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the humidity level for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272.

7. Claims 2, 31, 34, 36-43, 45, 49, 51-53, 55-58, 62, and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982) in view of Lashkari (GB 1,057,170) and Bernard et al. (US 4,948,613).

Regarding Claims 2, 36, 37, 38: Johnston discloses a process for making cheese [pg. 5, lines 10-12], having a protein concentrate with a calcium concentration of around 100mM/kg protein [Ex. 1, Ex. 4] and that the protein concentrate can be milk protein concentrate, milk, or reconstituted milk that is exposed to rennet and is coagulated to produce curd [pg. 5, lines 14-22; pg. 6, lines 16-31]. Johnston discloses including whey protein retentate or whey protein concentrate during the mixing step [pg. 10, lines 8-10]. Johnston discloses adding a prepared concentrated fermentation and enzyme derived flavor ingredients to the coagulated rennetted milk [pg. 11, lines 7-12; pg. 12, lines 24-26]. Johnston also discloses that the heating and mixing step forms a

homogenous cheese without holding for fermentation [pg. 9, lines 21-28; pg. 12, lines 28-32; pg. 13, lines 1-8]. Johnston discloses heating the cheese from 50°C to 90°C during the mixing step and that the heating and mixing step occurs from 1 to 30 minutes [pg. 9, lines 21-32]. Johnston discloses that the product is packaged for refrigeration packaging the cheese for refrigerated storage [pg. 10, lines 26-27; pg. 13, lines 4-5].

Johnston does not disclose the application of viable organisms to the surface or allowing cheese to ripen. Johnston does not disclose inactivating the flavor producing microorganisms.

Lashkari discloses a cheese flavor composition containing an edible mold which is *Penicillium roqueforti* [col.1, lines 17-24] that can be added to a food composition to provide a cheesy flavor. Lashkari discloses that the floured composition is sterilized by heating and then directly added to food or is spray dried for storage [pg. 2, lines 35-49].

Bernard discloses a cheese product that is cooled, the surface of the cheese is inoculated with micro-organisms that grow and promote ripening of the cheese [col. 4, lines 48-55].

At the time of the invention, it would have been obvious to one of ordinary skill in the art having the teachings of Johnston, Lashkari and Bernard before him or her to modify the process of Johnston with the flavor concentrate of Lashkari to include the cooling, surface inoculation and ripening steps of Bernard because Johnston and Bernard both disclose cheese products that are similar to traditionally made cheeses [Bernard col. 2, lines 33-36].

In order to get a more traditional texture and overall organoleptic qualities in the non-traditionally made cheese Bernard discloses that the application of the microbes to the surface of the cheese produces a surface bloom similar to traditional cheese [col. 4, lines 49-55]. Further, although Johnston does not explicitly teach the heating of the cheese for the inactivation of the mold, the Johnston references discloses the heating time and temperature within the range recited in the

Applicants' claims and therefore it would have been obvious that the time and temperature recited in Johnston would have been capable of inactivating the microorganisms.

Regarding Claim 31: Johnston discloses a process of making cheese as discussed in Claim 2 and further discloses shredding the block of cheese which is considered commensurate with dividing the cheese into portions [pg. 10, lines 26-27].

Regarding Claim 32: Johnston discloses as discussed in claim 2 and also discloses that the cheese is subjected to freezing [pg. 10, lines 26-27].

Regarding Claim 34: Johnston discloses as discussed in claim 2 and also discloses shredding the block of cheese [pg. 10, lines 26-27].

Regarding Claim 39: Johnston discloses a process of making cheese as disclosed in claim 2 and discloses that the lactic acid and butyric acid can be added to provide flavor [pg. 12, lines 20-26]. Johnston discloses that the butyric acid derived from a concentrated fermentation and enzyme derived flavor ingredients [pg. 13, lines 27-29].

Regarding Claims 40: Johnston discloses as discussed in claim 2 and also discloses adding 1.5% of a flavor compound derived from enzyme modified cheese and 350 ppm butyric acid added to the curd (rennetted milk)[Ex. 1] where the instant claim recites adding .1% to 20%.

Regarding Claim 41: Johnston discloses as discussed in claim 2 and also discloses that the fat source is cream, high fat cream or milk fat [pg. 10, lined 8-10].

Regarding Claims 42 and 43: Johnston discloses as discussed in claim 2 and also discloses that the heating step is carried out at 50°C to 90°C for 1 minute to 30 minutes [pg. 9, lines 24-32].

Regarding Claim 77: Johnston discloses as discussed in claim 2 and also discloses mixing high fat cream with the protein concentrate and flavor before heating and mixing [pg. 12, 20-26] which is considered to be commensurate with mixing after step b.

8. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982), Lashkari (GB 1,057,170) and Bernard et al. (US 4,948,613) as applied to claim 2 above and in further view of Chikuma (US 3,091,539).

Regarding Claim 33: Johnston discloses a process of making cheese as discussed above. Johnston does not disclose that following freezing the cheese is thawed and allowed to further ripen.

Chikuma discloses a method of making a cheese product by freezing, thawing and further ripening curd [col. 3, lines 1-6].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Johnston, Lashkari, Bernard, and Chikuma before him or her to modify the process of Johnson to incorporate a freezing step, thawing and ripening step in order to stop any undesired enzymatic reactions by freezing and to allow for further ripening of the cheese to enhance the flavor of the cheese product.

9. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982), Lashkari (GB 1,057,170) and Bernard et al. (US 4,948,613) as applied to claim 2 and in further view of The American Cheese Society (http://web.archive.org/web/20040917204831/http://www.cheesesociety.org/displaycommon.cfm?an=1&subarticlenbr=5).

Regarding Claim 44: Johnston discloses a process of making cheese as disclosed above and further discloses packaging the cheese for refrigerated storage [pg. 10, lines 26-27; pg. 13, lines 4-5]. Johnston does not disclose storing the cheese at temperatures between 5°C to 35°C and a relative humidity of 80% or greater.

The American Cheese Society discloses that cheese should be stored between 35°F and 45°F (1.6°C to 7.2°C) at a high humidity level [2nd paragraph].

At the time of the invention, it would have been obvious to one of ordinary skill in the art having the teachings of Johnston, Lashkari, Bernard, and The American Society to store the cheese at 35°F and 45°F (1.6°C to 7.2°C) and at a high humidity because storage under these condition are well known in the art and help retain freshness and organoleptic quality of the cheese.

Further, although The American Cheese Society does not disclose the same temperature range as in the instant claim, one having ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by The American Society overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. *In re Malagari* 182 USPQ 549,553.

Further, although The American Cheese Society does not explicitly disclose the humidity as higher than 80% it does disclose that the humidity must be high, therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the humidity level for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272.

10. Claims 3, 51-58, 62, 74, 75, and 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982) in view of Lashkari (GB 1,057,170) and Bernard et al. (US 4,948,613).

Regarding Claim 3, 51, 52, 53: Johnston discloses a process for making cheese [pg. 5, lines 10-12], having a protein concentrate with a calcium concentration of around 100mM/kg protein [Ex. 1, Ex. 4] and that the protein concentrate can be milk protein concentrate, milk, or reconstituted milk that is exposed to rennet and is coagulated to produce curd [pg. 5, lines 14-22; pg. 6, lines 16-31]. Johnston discloses including whey protein retentate or whey protein concentrate during the mixing step [pg. 10, lines 8-10]. Johnston discloses adding a prepared concentrated

fermentation and enzyme derived flavor ingredients to the coagulated rennetted milk [pg. 11, lines 7-12; pg. 12, lines 24-26]. Johnston also discloses that the heating and mixing step forms a homogenous cheese without holding for fermentation [pg. 9, lines 21-28; pg. 12, lines 28-32; pg. 13, lines 1-8]. Johnston discloses that the product is packaged for refrigeration packaging the cheese for refrigerated storage [pg. 10, lines 26-27; pg. 13, lines 4-5].

Johnston does not disclose application of viable organisms or allowing cheese to ripen.

Lashkari discloses a cheese flavor composition containing an edible mold which is *Penicillium roqueforti* [col.1, lines 17-24] that can be added to a food composition to provide a cheesy flavor.

Bernard discloses a cheese product that is cooled, the surface of the cheese is inoculated with micro-organisms that grow and promote ripening of the cheese [col. 4, lines 48-55].

At the time of the invention, it would have been obvious to one of ordinary skill in the art having the teachings of Johnston, Lashkari and Bernard, before him or her to modify the process of Johnston with the flavor concentrate of Lashkari to include the cooling, surface inoculation and ripening steps of Bernard because Johnston and Bernard both disclose cheese products that are similar to traditionally made cheeses [Bernard col. 2, lines 33-36]. In order to get a more traditional texture and overall organoleptic qualities in the non-traditionally made cheese Bernard discloses that the application of the microbes to the surface of the cheese produces a surface bloom similar to traditional cheese [col. 4, lines 49-55].

Regarding Claim 45: Johnston discloses a process of making cheese as discussed in claim 3 and further discloses shredding the block of cheese which is considered commensurate with dividing the cheese into portions [pg. 10, lines 26-27].

Regarding Claim 46: Johnston discloses as discussed in claim 3 and also discloses that the cheese is subjected to freezing [pg. 10, lines 26-27].

Regarding Claim 49: Johnston discloses as discussed in claim 3 and also discloses shredding the block of cheese [pg. 10, lines 26-27].

Regarding Claim 54: Johnston discloses a process of making cheese as disclosed in claim 3 and discloses that the lactic acid and butyric acid can be added to provide flavor [pg. 12, lines 20-26]. Johnston discloses that the butyric acid derived from a concentrated fermentation and enzyme derived flavor ingredients [pg. 13, lines 27-29].

Regarding Claim 55: Johnston discloses as discussed in claim 3 and also discloses adding 1.5% of a flavor compound derived from enzyme modified cheese and 350 ppm butyric acid added to the curd (rennetted milk)[Ex. 1] where the instant claim recites adding .1% to 20%.

Regarding Claim 56: Johnston discloses as discussed in claim 3 and also discloses that the fat source is cream, high fat cream or milk fat [pg. 10, lined 8-10].

Regarding Claim 57 and 58: Johnston discloses as discussed in claim 3 and also discloses that the heating step is carried out at 50°C to 90°C for 1 minute to 30 minutes [pg. 9, lines 24-32].

Regarding Claim 74: Johnston discloses as discussed in claim 3 and also discloses that the flavor is added before heating and mixing [pg. 12, lines 24-32].

Regarding Claim 78: Johnston discloses as discussed in claim 3 and also discloses mixing high fat cream with the protein concentrate after forming the protein concentrate [pg. 12, 20-26].

11. Claims 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982) and Lashkari (GB 1,057,170) and Bernard et al. (US 4,948,613) as applied to claim 3 above and in further view of Chikuma (US 3,091,539).

Regarding Claims 47 and 48: Johnston discloses a process of making cheese as discussed above. Johnston does not disclose that following freezing the cheese is thawed and allowed to further ripen.

Chikuma discloses a method of making a cheese product by freezing, thawing and further ripening curd [col. 3, lines 1-6].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Johnston, Lashkari, Bernard, and Chikuma before him or her to modify the process of Johnson to incorporate a freezing step, thawing and ripening step in order to stop any undesired enzymatic reactions by freezing and to allow for further ripening of the cheese to enhance the flavor of the cheese product.

12. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982), Lashkari (GB 1,057,170), and Bernard et al. (US 4,948,613) as applied to claim 3 above and in further view of The American Cheese Society (http://web.archive.org/web/20040917204831/http://www.cheesesociety.org/displaycommon.cfm?an=1&subarticlenbr=5).

Regarding Claim 59: Johnston discloses a process of making cheese as disclosed in claim 3 and further discloses packaging the cheese for refrigerated storage [pg. 10, lines 26-27; pg. 13, lines 4-5]. Johnston does not disclose storing the cheese at temperatures between 5°C to 35°C and a relative humidity of 80% or greater.

The American Cheese Society discloses that cheese should be stored between 35°F and 45°F (1.6°C to 7.2°C) at a high humidity level [2nd paragraph].

At the time of the invention, it would have been obvious to one of ordinary skill in the art having the teachings of Johnston, Lashkari, Bernard, and The American Society to store the cheese at 35°F and 45°F (1.6°C to 7.2°C) and at a high humidity because storage under these condition are well known in the art and help retain freshness and organoleptic quality of the cheese.

Further, although The American Cheese Society does not disclose the same temperature range as in the instant claim, one having ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by The American Society overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. *In re Malagari* 182 USPQ 549,553.

Further, although The American Cheese Society does not explicitly disclose the humidity as higher than 80% it does disclose that the humidity must be high, therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the humidity level for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272.

13. Claim 75 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982) and Lashkari (GB 1,057,170) and Bernard et al. (US 4,948,613) as applied to claim 3 above and in further view of and Skovhauge et al. (US 4,655,127).

Regarding Claim 75: Johnston discloses a process of making cheese as discussed above. Johnston does not explicitly disclose that after cooling, the product is divided into consumer portions.

Skovhauge discloses that after cooling (5°C to 15° C), cheese grains, formed from protein concentrate, are filled in to a package [col. 4, lines 22-33] which has been interpreted as a consumer portion.

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Johnston, Lashkari, Bernard, and Skovhauge before him or her to wait until the cheese product was cooled to a desirable temperature before portioning out for the consumer

because the warm molten mass would not be able to retain its proper shape (block, shreds) and the property quantity (oz. lb.) usually provided to consumers.

14. Claims 4, 60, 63, 65-72, 76, and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982) and Lashkari (GB 1,057,170).

Regarding Claims 4, 65, 66, 67: Johnston discloses a process for making cheese [pg. 5, lines 10-12], having a protein concentrate with a calcium concentration of around 100mM/kg protein [Ex. 1, Ex. 4] and that the protein concentrate can be milk protein concentrate, milk, or reconstituted milk that is exposed to rennet and is coagulated to produce curd [pg. 5, lines 14-22; pg. 6, lines 16-31]. Johnston discloses including whey protein retentate or whey protein concentrate during the mixing step [pg. 10, lines 8-10]. Johnston discloses adding a prepared concentrated fermentation and enzyme derived flavor ingredients to the coagulated rennetted milk [pg. 11, lines 7-12; pg. 12, lines 24-26]. Johnston also discloses that the heating and mixing step forms a homogenous cheese without holding for fermentation [pg. 9, lines 21-28; pg. 12, lines 28-32; pg. 13, lines 1-8]. Johnston discloses heating the cheese from 50°C to 90°C during the mixing step and that the heating and mixing step occurs from 1 to 30 minutes [pg. 9, lines 21-32]. Johnston discloses shredding the block of cheese which is considered commensurate with dividing the cheese into portions [pg. 10, lines 26-27].

Johnston does not disclose inactivating the flavor producing microorganisms.

Lashkari discloses a cheese flavor composition containing an edible mold which is *Penicillium roqueforti* [col.1, lines 17-24] that can be added to a food composition to provide a cheesy flavor. Lashkari discloses that the floured composition is sterilized by heating and then directly added to food or is spray dried for storage [pg. 2, lines 35-49].

At the time of the invention, it would have been obvious to one of ordinary skill in the art having the teachings of Johnston and Lashkari before him or her to modify the cheese product of Johnston to incorporate the blue cheesy flavor of Lashkari cheese without the need for months of aging/curing to create natural blue cheese as is usual in the art. Johnston's process is specifically directed towards a cheese product that does not require fermentation and the mixture of protein, fat, and flavor.

Lashkari discloses that its flavoring component is highly flavored and does not require further treatment in order to be added to a food component [col. 3, lines 43-46]. Because Johnston discloses the need for a flavor agent by the inclusion of salt and flavor in the process of making the cheese product, it would have been obvious to flavor the cheese product with the blue cheese flavoring of Lashkari in order to give a specific highly flavored product without having to wait for months to produce the flavor as is known in the art. It also would have been obvious to use the flavor concentrate to provide more variety to the consumers, since Johnston discloses flavoring for cheddar, mozzarella, and Gouda cheeses. Further it would have been obvious to inactivate the microorganism by sterilization in order to maintain the optimum flavor achieved during fermentation of the microorganism.

Further, although Johnston does not explicitly teach the heating of the cheese for the inactivation of the mold, the Johnston references discloses the heating time and temperature within the range recited in the Applicants' claims and therefore it would have been obvious that the time and temperature recited in Johnston would have been capable of inactivating the microorganisms.

Regarding Claim 60: Johnston discloses that the cheese is subjected to freezing [pg. 10, lines 26-27].

Regarding Claim 63: Johnston discloses a process of making cheese and further discloses shredding the block of cheese [pg. 10, lines 26-27].

Regarding Claims 68: Johnston discloses a process of making cheese as disclosed in claim 4 and discloses that the lactic acid and butyric acid can be added to provide flavor [pg. 12, lines 20-26]. Johnston discloses that the butyric acid derived from a concentrated fermentation and enzyme derived flavor ingredients [pg. 13, lines 27-29].

Regarding Claim 69: Johnston discloses adding 1.5% of a flavor compound derived from enzyme modified cheese and 350 ppm butyric acid added to the curd (rennetted milk)[Ex. 1] where the instant claim recites adding .1% to 20%.

Regarding Claim 70: Johnston discloses that the fat source is cream, high fat cream or milk fat [pg. 10, lines 8-10].

Regarding Claims 71 and 72: Johnston discloses that the heating step is carried out at 50°C to 90°C for 1 minute to 30 minutes [pg. 9, lines 24-32].

Regarding Claim 79: Johnston discloses mixing in high fat cream with the protein concentrate and flavor before heating and mixing [pg. 12, lines 20-26].

15. Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982) and Lashkari (GB 1,057,170) as applied to claims 4 and 60 above and in further view of Chikuma (US 3,091,539).

Regarding Claim 61: Johnston discloses a process of making cheese as discussed in Claim 4 but does not disclose that following freezing the cheese is thawed and allowed to further ripen. However, Chikuma discloses a method of making a cheese product by freezing, thawing and further ripening curd [col. 3, lines 1-6].

At the time of the invention it would have been obvious to one of ordinary skill in the art having the teachings of Johnston, Lashkari, and Chikuma before him or her to modify the process of Johnson to incorporate a freezing step, thawing and ripening step in order to stop any undesired enzymatic reactions by freezing and to allow for further ripening of the cheese to enhance the flavor of the cheese product.

16. Claim 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982) and Lashkari (GB 1,057,170) as applied to claim 4 above in view of Bernard et al. (US 4,948,613).

Regarding Claim 62: Johnston discloses a process of making cheese as discussed in claim 4. Johnston does not disclose applying viable microorganisms to the surface and allowing ripening.

Bernard discloses a cheese product that is cooled, the surface of the cheese is inoculated with micro-organisms that grow and promote ripening of the cheese [col. 4, lines 48-55].

At the time of the invention, it would have been obvious to one of ordinary skill in the art having the teachings of Johnston, Lashkari, and Bernard before him or her to modify the process of Johnston to include the cooling, surface inoculation and ripening steps of Bernard because Johnston and Bernard both disclose cheese products that are similar to traditionally made cheeses [Bernard col. 2, lines 33-36]. In order to get a more traditional texture and overall organoleptic qualities in the non-traditionally made cheese Bernard discloses that the application of the microbes to the surface of the cheese produces a surface bloom similar to traditional cheese [col. 4, lines 49-55].

17. **Claim 73 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston (WO 03/069982) and Lashkari (GB 1,057,170) as applied to claim 4 above and in further view of The American Cheese Society**

(http://web.archive.org/web/20040917204831/http://www.cheesesociety.org/displaycommon.cfm?an=1&subarticlenbr=5).

Regarding Claim 73: Johnston discloses a process of making cheese as disclosed in Claim 4 and further discloses packaging the cheese for refrigerated storage [pg. 10, lines 26-27; pg. 13, lines 4-5]. Johnston does not disclose storing the cheese at temperatures between 5°C to 35°C and a relative humidity of 80% or greater.

The American Cheese Society discloses that cheese should be stored between 35°F and 45°F (1.6°C to 7.2°C) at a high humidity level [2nd paragraph].

At the time of the invention, it would have been obvious to one of ordinary skill in the art having the teachings of Johnston, Lashkari, and The American Society to store the cheese at 35°F and 45°F (1.6°C to 7.2°C) and at a high humidity because storage under these condition are well known in the art and help retain freshness and organoleptic quality of the cheese.

Further, although The American Cheese Society does not disclose the same temperature range as in the instant claim, one having ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by The American Society overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. *In re Malagari* 182 USPQ 549,553.

Further, although The American Cheese Society does not explicitly disclose the humidity as higher than 80% it does disclose that the humidity must be high, therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the humidity level for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272.

Response to Arguments

18. Applicant's arguments, with respect to the rejections of the claims 2 and 4 under 112 2nd for lack of antecedent basis have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

19. Applicant's arguments filed 10/12/11 regarding the rejection of claim 1 and its dependents under Johnston (alone or in combination with other secondary references) have been fully considered but they are not persuasive. The Applicants have amended the claims to recite whey protein and argue that the Johnston reference does not recite whey protein. The Examiner disagrees because as discussed in the above action, Johnston does allow for the incorporation of whey protein.

20. Applicant's amendments to the claim 2 and its dependents, see pages 11 and 12, filed 10/12/11, with respect to the rejections of claims 2 and its dependents under Johnston, Lashkari, Bernard, and Nelson (or in combination with other references) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of Johnston, Lashkari, and Bernard (or in combination with other references). The Nelson reference has been removed because it is no longer necessary to teach a limitation of the claim 2, since the Johnston reference disclosed the new limitation added to claim 2.

21. Applicant's arguments filed 10/12/11 regarding the rejection of claim 3 and its dependents under Johnston, Lashkari, and Bernard (or in combination with other references) have been fully considered but they are not persuasive. The Applicants have amended the claims to recite whey protein and argue that the Johnston reference does not recite whey protein. The Examiner disagrees because as discussed in the above action, Johnston does allow for the incorporation of whey protein.

22. Applicant's amendments to the claim 4 and its dependents, see pages 11 and 12, filed 10/12/11, with respect to the rejections of claims 4 and its dependents under Johnston, Lashkari, and Nelson (or in combination with other references) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of Johnston and Lashkari (or in combination with other references). The Nelson reference has been removed because it is no longer necessary to teach a limitation of the claim 4, since the Johnston reference disclosed the new limitation added to claim 4.

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FELICIA KING whose telephone number is (571)270-3733. The examiner can normally be reached on Mon- Thu 7:30 a.m.- 5:00 p.m.; Fri 7:30 a.m. - 4:00 p.m. alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Humera Sheikh can be reached on 571-272-0604. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Humera N. Sheikh/
Supervisory Patent Examiner, Art Unit 1789

/F. K./
Examiner, Art Unit 1789